well as to stormwater infiltrated within one-quarter mile of the lake in soils that do not meet the soil suitability criteria in Chapter 7.

Performance Goal: The Phosphorus Menu facility choices are intended to achieve a goal of 50% total phosphorus removal for a range of influent concentrations of 0.1 – 0.5 mg/l total phosphorus. In addition, the choices are intended to achieve the Basic Treatment performance goal. The performance goal applies to the water quality design storm volume or flow rate, whichever is applicable, and on an annual average basis. The incremental portion of runoff in excess of the water quality design flow rate or volume can be routed around the facility (off-line treatment facilities), or can be passed through the facility (on-line treatment facilities) provided a net pollutant reduction is maintained. Ecology encourages the design and operation of treatment facilities that engage a bypass at flow rates higher than the water quality design flow rate. However, this is acceptable provided that the overall reduction in phosphorus loading (treated plus bypassed) is at least equal to that achieved with initiating bypass at the water quality design flow rate. Note that wetpool facilities are always designed to be on-line.

Options: Any one of the following options may be chosen to satisfy the phosphorus treatment requirement.

- **Infiltration with appropriate pretreatment** – See Chapter 6 and Chapter 7
  - Infiltration treatment

    If infiltration is through soils meeting the minimum site suitability criteria for infiltration treatment (See Chapter 7), a presettling basin or a basic treatment facility can serve for pretreatment.
  - Infiltration preceded by Basic Treatment

    If infiltration is through soils that do not meet the soil suitability criteria for infiltration treatment, treatment must be provided by a basic treatment facility unless the soil and site fit the description in the next option below.
  - Infiltration preceded by Phosphorus Treatment

    If the soils do not meet the soil suitability criteria **and** the infiltration site is within ¼ mile of a phosphorus-sensitive receiving water, or a tributary to that water, treatment must be provided by one of the other treatment facility options listed below.
- **Large Sand Filter** – See Chapter 8
- **Amended Sand Filter** – See Chapter 12

Note: Processed steel fiber and crushed calcitic limestone are the only sand filter amendments for which Ecology has data that documents increased dissolved metals removal. Though Ecology is interested in obtaining additional data on the effectiveness of these amendments, local governments may exercise their judgment on the extent to which to allow their use.

- **Large Wetpond** – See Chapter 10
- **Media Filter targeted for phosphorus removal** – See Chapter 12

  Note: The use of a Stormfilter™ with iron-infused media is approved for use in limited circumstances, provided a monitoring program consistent with adopted protocols is implemented.

- **Two-Facility Treatment Trains** – See Table 3.1

Table 3.1 – Treatment Trains for Phosphorus Removal

First Basic Treatment Facility	Second Treatment Facility
Biofiltration Swale	Basic Sand Filter or Sand Filter Vault
Filter Strip	Linear Sand Filter (no presettling needed)
Linear Sand Filter	Filter Strip
Basic Wetpond	Basic Sand Filter or Sand Filter Vault
Wetvault	Basic Sand Filter or Sand Filter Vault
Stormwater Treatment Wetland	Basic Sand Filter or Sand Filter Vault
Basic Combined Detention and Wetpool	Basic Sand Filter or Sand Filter Vault

3.4 Enhanced Treatment Menu

Where Applied: Enhanced treatment is required for:

Industrial project sites,
Commercial project sites,
Multi-family project sites, and

~~Arterials and highways~~ Urban roads with expected Average Daily Traffic (ADT) counts greater than 7,500; or a rural road or freeway with expected ADT greater than 15,000

that discharge to fish-bearing streams, lakes, or to waters or conveyance systems tributary to fish-bearing streams or lakes. However, such sites listed above that discharge directly (or, indirectly through a municipal storm sewer system) to Basic Treatment Receiving Waters (Appendix V-A), and ~~A~~areas of the above-listed project sites~~multifamily, industrial and commercial project sites~~ that are identified as subject to Basic Treatment requirements (see Step 6) are also not subject to Enhanced Treatment requirements. For developments with a mix of land use types, the Enhanced Treatment requirement shall apply when the runoff from the

areas subject to the Enhanced Treatment requirement comprise 50% or more of the total runoff within a threshold discharge area.

Performance Goal: The Enhanced Menu facility choices are intended to provide a higher rate of removal of dissolved metals than Basic Treatment facilities. Due to the sparse data available concerning dissolved metals removal in stormwater treatment facilities, a specific numeric removal efficiency goal could not be established at the time of publication. Instead, Ecology relied on available nationwide and local data, and knowledge of the pollutant removal mechanisms of treatment facilities to develop the list of options below. In addition, the choices are intended to achieve the Basic Treatment performance goal. The performance goal assumes that the facility is treating stormwater with dissolved Copper typically ranging from 0.003 to 0.02 mg/l, and dissolved Zinc ranging from 0.02 to 0.3 mg/l.

The performance goal applies to the water quality design storm volume or flow rate, whichever is applicable, and on an annual average basis. The incremental portion of runoff in excess of the water quality design flow rate or volume can be routed around the facility (off-line treatment facilities), or can be passed through the facility (on-line treatment facilities) provided a net pollutant reduction is maintained. Ecology encourages the design and operation of treatment facilities that engage a bypass at flow rates higher than the water quality design flow rate as long as the reduction in dissolved metals loading exceeds that achieved with initiating bypass at the water quality design flow rate. Note that wetpool facilities are always designed to be on-line.

Options: Any one of the following options may be chosen to satisfy the enhanced treatment requirement:

- **Infiltration with appropriate pretreatment** – See Chapter 7
  - Infiltration treatment

    If infiltration is through soils meeting the minimum site suitability criteria for infiltration treatment (See Chapter 7), a presettling basin or a basic treatment facility can serve for pretreatment.
  - Infiltration preceded by Basic Treatment

    If infiltration is through soils that do not meet the soil suitability criteria for infiltration treatment, treatment must be provided by a basic treatment facility unless the soil and site fit the description in the next option below.
  - Infiltration preceded by Enhanced Treatment

    If the soils do not meet the soil suitability criteria **and** the infiltration site is within ¼ mile of a fish-bearing stream, a

(use the Phosphorus Treatment Menu), or within ¼ mile of a fish-bearing stream, or a lake (use the Enhanced Treatment Menu).

- Residential projects not otherwise needing phosphorus control in Step 4 (See Chapter 2) as designated by USEPA, the Department of Ecology, or a local government; and
- Project sites discharging directly to salt waters, river segments, and lakes listed in Appendix V-A; and
- Project sites that drain to streams that are not fish-bearing, or to waters not tributary to fish-bearing streams;
- Landscaped areas of industrial, commercial, and multi-family project sites, and parking lots of industrial and commercial project sites, dedicated solely to parking of employees' private vehicles, that do not involve any other pollution-generating sources (e.g., industrial activities, customer parking, storage of erodible or leachable material, wastes or chemicals).

For developments with a mix of land use types, the Basic Treatment requirement shall apply when the runoff from the areas subject to the Basic Treatment requirement comprise 50% or more of the total runoff within a threshold discharge area.

Performance Goal: The Basic Treatment Menu facility choices are intended to achieve 80% removal of total suspended solids for influent concentrations that are greater than 100 mg/l, but less than 200 mg/l. For influent concentrations greater than 200 mg/l, a higher treatment goal may be appropriate. For influent concentrations less than 100 mg/l, the facilities are intended to achieve an effluent goal of 20 mg/l total suspended solids.

The performance goal applies to the water quality design storm volume or flow rate, whichever is applicable. The goal also applies on an average annual basis to the entire annual discharge volume (treated plus bypassed). The incremental portion of runoff in excess of the water quality design flow rate or volume can be routed around the facility (off-line treatment facilities), or can be passed through the facility (on-line treatment facilities) provided a net TSS reduction is maintained. Ecology encourages the design and operation of treatment facilities that engage a bypass at flow rates higher than the water quality design flow rate as long as the reduction in TSS loading exceeds that achieved with initiating bypass at the water quality design flow rate. Note that wetpool facilities are always designed to be on-line.

The performance goal assumes that the facility is treating stormwater with a typical particle size distribution. For a description of a typical particle